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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/419,872	10/19/1999	AKIHISA KAWAGUCHI	1344.1033/JD	1976

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EXAMINER
SEDIGHIAN, REZA

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/419,872	KAWAGUCHI ET AL.	
	Examiner	Art Unit	
	M. R. Sedighian	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosaka (US patent No: 6,094,296).

Regarding claim 1 and 7, Kosaka discloses a method of controlling an optical wavelength division multiplexing transmission apparatus (col. 2, lines 55-60 and fig. 10) which is equipped with an optical attenuation section (8, figs. 4, 10) for attenuating (17b, 17c, fig. 4) individually the power level of each of a plurality of input optical signals (λ2, λ3, fig. 4) of different wavelengths (col. 5, lines 60-67, col. 6, lines 1-10, col. 7, lines 54-58), an optical multiplexing section (19, fig. 4), an optical amplification section (9, figs. 4, 10), and a spectral analysis section (34, fig. 10), wherein the method comprising the steps of setting initial information including the wavelength being used (col. 5, lines 11-14), the number of wavelength being used (λ1, λ2, λ3, fig. 4), setting the amount of optical attenuation corresponding to each wavelength (col. 7, lines 57-58 and 14, fig. 4, 10) and setting the operation of the optical amplification section to an automatic level control (col. 5, lines 53-55). Kosaka differs from the claimed invention in that Kosaka does not specifically disclose an initial setting of the amount of optical attenuation corresponding to each wavelength to a maximum value and controlling the power level of the optical signals of each wavelength analyzed by the spectral analysis section to approximately constant. Kosaka discloses a controller 14 for controlling the gain of optical amplifier or attenuation performed by the optical power adjusting means (col. 3, lines 10-14 and 8, figs. 4,

10). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention that a controller such as the one of Kosoka can provide a maximum amount of attenuation for each wavelength in order to control the input powers to a predetermined value and to prevent wavelength deviation between adjacent channels. As to controlling the power level of the optical signals of each wavelength to approximately constant, Kosaka further discloses the control unit 14 controls the optical power adjusting unit 8 and the excitation light source 11 in the optical amplifier unit 9 in response to power of light at the respective wavelengths or a deviation of power between the wavelengths that are detected by the output monitor such that the power of the light at the respective wavelengths or the deviation of power between the wavelengths reaches a predetermined value (col. 13, lines 15-25). Therefore, it would have been obvious to a person of ordinary skill in the art that a controller such as controller 14 can provide a constant power level for each wavelength to provide an output light of constant power level even if the input light fluctuates in its power level and to avoid the occurrence of an error in the multiplexed data at a downstream location due to fluctuation of the optical signal power.

Regarding claim 4, Kosaka discloses a spectral anomaly processing step (34, fig. 10), which upon occurrence of an anomaly in the analysis operation of the spectral analysis section (col. 13, lines 8-15), controls the amount of optical attenuation corresponding to each wavelength (col. 13, lines 15-25).

3. Claims 2-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosaka (US patent No: 6,094,296) in view of Sugaya et al. (US patent No: 6,025,947).

Regarding claim 2-3, Kosaka differs from the claimed invention in that Kosaka does not disclose a wavelength number variation processing step, switching the operation of optical amplifier from automatic level control to automatic gain control, and controlling the amount of attenuation following the wavelength number variation. Sugaya discloses an optical multiplex transmission system (figs. 1, 20, 22), wherein the multiplexed optical signals (col. 17, lines 43-45) are attenuated (64, fig. 20), amplified (521, fig. 20), and monitored (70, fig. 20). Sugaya discloses a monitoring step (70, figs. 20, 22 and 98, fig. 22) that monitors the variation of number of wavelengths (col. 7, lines 25-36, col. 17, lines 49-55). Sugaya further discloses a control circuit (66, figs. 20, 22) for controlling the amount of attenuation (col. 17, lines 56-59) by the optical attenuator (64, figs. 20, 22) and a control circuit (60_1, figs. 20, 22) for controlling the gain of the optical amplifier (col. 21, lines 20-23 and 52_1, 59_1, figs. 20, 22) based on the result of the monitoring step (col. 17, lines 60-63 and 70, figs. 20, 22 and 98, fig. 22). Sugaya further discloses controlling the amount of attenuation following the number variation so that the power level of the optical signal of each wavelength stays approximately constant (col. 17, lines 60-63). One of ordinary skill in the art would have been motivated to incorporate an optical amplifying apparatus which is capable of arbitrarily adjusting optical output power at respective wavelengths of a wavelength multiplexed signal light when the input power is uniformly increases or decreases to provide a constant gain and a constant power level. Therefore, it would have been obvious to an artisan at the time of invention to incorporate a monitoring unit and control circuitries such as the ones of Sugaya for the monitor and control circuitries in the multiplex communication system of Kosaka in order to provide a monitoring step that can detect variation of number of channels and to control the amount of attenuation

and gain of the optical amplifier based on the number of channels to further provide an optical amplifying apparatus with reduced non-linear degradation and S/N degradation and to control the power level of the individual signals approximately constant.

Regarding claim 5-6, Kosaka differs from the claimed invention in that Kosaka does not disclose a supervisory control processing step for informing the subsequent stage that the optical amplification is switched to automatic gain control. Sugaya further discloses a supervisory control processing step which inform the subsequent stage that the optical amplification is switched to automatic gain control (col. 19, lines 30-36, col. 20, lines 15-20, 23-37). As to claim 6, Sugaya discloses a supervisory control channel of different wavelength (col. 19, lines 31-32). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a monitoring and a supervisory control processing step such as the one of Sugaya for the monitor and processing stage in the multiplex communication system of Kosaka in order to provide supervisory information such as identification number for identifying the individual optical amplifiers or to provide and identify the channel number and the number of channels.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (703) 308-9063. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

JASON CHAN
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TECHNOLOGY CENTER 2600